
U.S. Department of the Interior • U.S. Geological Survey

MINERAL INDUSTRY SURVEYS

Thomas J. Casadevall, Acting Director

Reston, VA 20192

For information, contact:

Earle B. Amey, Gold Specialist, (703) 648-4969, Fax: (703) 648-7757

Henry E. Hilliard, Silver and Platinum-Group Metals Specialist (703) 648-4970

E-mail: eamey@usgs.gov and hhiliar@usgs.gov

E. J. Hemphill (Data), (703) 648-7974

MINES FaxBack: (703) 648-4999

Internet: <http://minerals.er.usgs.gov/minerals>

PRECIOUS METALS IN NOVEMBER 1997

U.S. mines produced 29.8 tons of gold and 140 tons of silver in November 1997. Production of gold was up by 12% in California. Production of silver was down by 11% in Nevada.

Gold

Domestic.—The Justice Department and the Cheyenne River Sioux Tribe are suing Homestake Mining Co. for allegedly polluting a watershed which includes Whitewood Creek, the Belle Fourche River, the Cheyenne River, and Lake Oahe in central South Dakota with more than 1 million metric tons of toxic mine tailings. The Whitewood Creek Superfund site had been removed from the Environmental Protection Agency's National Priority List (American Metal Market, 1997b).

Interest in the American Eagle coin is picking up considerably. The U.S. Mint reported that coin sales, which more than doubled last year, rose to 17.9 tons (575,750 troy ounces) of gold in the fiscal year ending September 30, 1997. However, this sales increase followed the slowest year for American Eagle coins in the past 6 years and was well below historic highs. Authorized purchasers who distribute the coins to the retail sector expected these gains as a result of a renewed and extensive marketing effort by the Mint as well as bargain hunting by the public as gold prices fell to fresh lows (American Metal Market, 1997a).

International.—The drop in gold prices is giving added urgency to the restructuring of South Africa's gold mines. For Gold Shelf One Ltd. (Goldco), this almost certainly means the closure of the Libanon gold mine and perhaps the Evander gold mine, neither of which shows much prospect of getting production costs below \$250 per ounce of gold. South Africa's mining sector is facing an unemployment rate of nearly 30% after 2 years of job losses, and it seems likely to some observers that 100,000 more miners will lose their jobs, leaving an industry that employed 350,000 miners 4 years ago and

employs 195,000 miners now, with only 95,000 miners after the next 12 to 18 months (American Metal Market, 1997d).

Recent forecasts indicate that Russian gold production will continue to decline through 1998. During the first 10 months of 1997, gold output fell 8% to 92.2 tons. In addition, the Irkutsk region revised its production forecast downward from 14.3 tons in 1997 to 12.7 tons in 1998; however, industry sources are expecting an output of only 11.1 tons. On the other hand, Russia is proposing its first investment in gold recycling from scrap with new plants at Roskontrakt and Inkombank (Platt's Metals Week, 1997b).

China is expected to produce 150 tons of gold in 1997. By November, China had produced 137.1 tons of gold, up 27.8% from 1996. About one-third of China's gold firms are losing money compared to only 11% last year. A major problem is that China's gold industry has too many small firms scattered across the country, making economies of scale difficult to achieve. There are more than 1,200 gold mining firms, each with an output of less than 100 kilograms per year (Platt's Metals Week, 1997a).

A new solvent-extraction process has been successfully implemented at Randgold's Harmony gold mine in the Orange Free State, South Africa. The process refines gold slimes from the electrowinning cells to produce gold with "four-nines" purity on site, in 12 hours. This is the first time a South African gold mine will refine gold on site. Harmony is expected to establish a jewelry-producing facility at this site (Mintek Bulletin, 1997).

Update.—There was a slight drop in gold business during November on the London bullion market. The average daily turnover was 1.3 million kilograms of gold, down about 3% from October. This figure represents a 32% increase over the daily turnover for November 1996 (American Metal Market, 1997c).

On December 4, the London gold prices closed at \$286.50 per ounce, the lowest level for 18 years. This latest dip in price

was triggered by a statement from Argentina that it had sold 125 tons of gold from its reserves earlier in the year. That brought the year's total known central bank sales to 589 tons (125 tons from Argentina, 300 tons from Holland, and 164 tons from Australia). There had been sales from the Baltic States and Eastern Europe, but the tonnages involved were very small, probably bringing the total to about 600 tons (Platt's Metals Week, 1997c). On January 9, the London gold price dropped even lower, to \$278.70, but recovered to \$290 by January 16.

Silver

Cía. Minera Mantos de Oro, jointly owned by Placer Dome and TVX Gold of Canada, is planning to begin pre-stripping work at the Chimberos silver project in Chile. Production from the new mine reportedly is expected to begin in first quarter 1998. Initial work will focus on a pit located 4,200 meters above sea level, with subsequent operations moving down to about 4,000 meters. Chimberos has reserves of 4.8 million tons of ore grading 305 grams/ton (g/t) of silver. Also, some byproduct silver is expected to come from the nearby Coipa gold mine where silver grades are on the increase. The Coipa mine produced 7,540 kilograms of gold in 1996, down 14% from 1995, while silver output rose from 124 tons in 1995 to 420 tons in 1996 (Metal Bulletin, 1997).

Polymetallic Deposits in Kazakhstan to be Explored.—

The Canadian company Junior Steppe Gold is exploring two recently acquired polymetallic deposits on its 59%-owned Mizek property in Kazakhstan. Known as Kosmurun and Akbastau, the deposits reportedly contain a combined resource of about 1.043 million tons of copper, 355,000 tons of zinc, 34 tons of gold, and 776 tons of silver. The Kosmurun deposit consists of an oxide zone, an upper zone, and a deeper main zone. Proven and probable reserves reportedly total 19 million tons grading 3.4% copper, 1% zinc, 1.1 g/t gold, and 20 g/t silver. The Akbastau deposit, located about 6 kilometers west of Kosmurun, does not contain massive sulfide mineralization. It does contain a 60- to 95-meter layer of supergene enriched ore. Proven and probable reserves reportedly are 9.3 million tons of ore grading 1.8% copper, 1.1% zinc, 0.56 g/t gold, and 15.2 g/t silver (Northern Miner, 1997b).

Platinum-Group Metals

The supply of palladium in 1997 was 55,680 kilograms short of the demand, according to a report published by London-based Johnson Matthey. The report, titled "Platinum 1997," states that the total supply of palladium in 1997 was 174 tons while demand was more than 230 tons. The shortfall was the result of

an interruption of supplies from Russia. After a 6-month interruption in Russian exports, sales by the state-owned trading company, Almaz, declined to 99.5 tons in 1997, and modest increases in shipments from other countries were not enough to offset the difference. At the same time, strong growth in palladium requirements in the auto and electronics industries increased demand for palladium by about 40 tons (Johnson Matthey, 1997).

The price of palladium doubled from about \$120 per ounce in January 1997 to around \$240 per ounce in the first part of June. The price decreased shortly afterwards to \$162 per ounce when Russian shipments resumed but peaked at an 18-year high of \$245 per ounce in August. For the remainder of the year, the price of palladium was between \$190 and \$210 per ounce. The metal being exported from Russia may have belonged to the central bank, which is said to have acquired much of the Russian Government's stock of platinum-group metals (PGM) in 1996. Despite withdrawals of more than 9 million ounces over a 5-year period, the remaining stocks held by the bank and the State Fund (Gokhran) is more than sufficient to meet customer demand for the next several years. When these reserves are exhausted, the Russian supply of PGM will depend on production from the Noril'sk-Yalnakh region of northern Siberia, where PGM are recovered as byproducts of nickel production (Northern Miner, 1997a).

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- 1997b, Russian gold output dwindles: Platt's Metals Week, v. 68, no. 49, December 8, p. 3.
- 1997c, Spot gold falls to 18-year low of \$286.50/oz: Platt's Metals Week, v. 68, no. 49, December 8, p. 1.

TABLE 1
MINE PRODUCTION OF RECOVERABLE GOLD AND SILVER IN THE UNITED STATES, BY STATE 1/

(Kilograms)

	Arizona	California	Montana	Nevada	Other States 2/	Total
Gold:						
1996:						
November	125	1,860	929	18,000	4,810	25,700
December	124	1,980	876	19,800	5,210	28,000
Jan.-Dec.	1,740	23,800	9,110	213,000	69,900	318,000
1997: p/						
January	W	1,800	948	18,500	5,600	26,900
February	W	1,800	659	16,400	5,430	24,300
March	W	1,850	671	20,400	5,310	28,200
April	W	1,850	618	18,900	5,730	27,100
May	102	1,830	640	19,700	5,970	28,300
June	74	1,770	W	21,000	6,020	28,900
July	W	1,790	648	20,700	5,620	28,800
August	W	1,800	474	20,600	5,440	28,300
September	W	1,790	632	20,600	5,310	28,300
October	W	1,730	W	22,400 r/	6,030	30,200 r/
November	W	1,940	W	22,200	5,730	29,800
Jan.-Nov.	176	19,900	5,290	221,000	56,500	309,000
	Arizona	California	Idaho	Nevada	Other States 3/	Total
Silver:						
1996:						
November	13,900	1,340	17,700	48,900	32,200	114,000
December	14,100	1,250	17,800	58,300	34,800	126,000
Jan.-Dec.	188,000	21,600	229,000	605,000	530,000	1,570,000
1997: p/						
January	11,200	1,560	W	63,000	61,700	138,000
February	10,300	1,530	W	44,700	62,100	119,000
March	14,700	1,810	W	60,200	56,800	133,000
April	12,600	2,110	W	56,500	62,900	134,000
May	13,500	1,880	W	45,400	67,700	128,000
June	14,600	1,720	W	58,800	61,800	137,000
July	13,200	W	W	57,000	60,800	131,000
August	14,900	W	W	64,600	62,700	142,000
September	12,600	W	W	80,700	65,400	159,000
October	12,000 r/	W	W	70,700 r/	62,000	145,000 r/
November	12,200	W	W	62,700	65,200	140,000
Jan.-Nov.	142,000	10,600	W	664,000	689,000	1,510,000

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other States."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes Alaska, Colorado, Idaho, New Mexico, South Carolina, South Dakota, Utah, Wisconsin, and States indicated by symbol "W."

3/ Includes Alaska, Colorado, Michigan, Missouri, Montana, New Mexico, New York, South Carolina, South Dakota, Utah, Wisconsin, and States indicated by symbol "W."

TABLE 2
SELECTED PRECIOUS METAL PRICES

(Dollars per troy ounce)

	Gold	Silver	Platinum	Palladium
<u>Engelhard Industries:</u>				
<u>1996:</u>				
<u>Year:</u>				
Low/date	368.67 (Dec. 03)	4.67 (Dec. 03)	368.00 (Dec.16)	117.00
High/date	391.06 (Aug. 05)	5.82 (Feb. 02)	433.00 (Feb. 05)	146.00
Average	389.08	5.20	397.97	130.39
<u>1997:</u>				
<u>October:</u>				
Low/date	312.58/31	4.69/28	400.00/28	202.00
High/date	338.37/01	5.28/08	438.00/15	232.00
Average	326.07	5.02	424.73	214.21
<u>November:</u>				
Low/date	298.15/26	4.83/07	384.00/25	214.00
High/date	316.54/04	5.39/21	411.00/04	220.00
Average	308.27	5.06	396.38	217.05
<u>December:</u>				
Low/date	284.13/12	5.20/01	345.00/16	186.00
High/date	297.85/24	6.20/29	391.00/03	216.00
Average	290.28	5.74.92	369.09	203.04
<u>Year to date:</u>				
Low/date	298.15 (Nov. 26)	4.22 (July 08)	345.00 (Dec.16)	177.00
High/date	367.82 (Jan. 01)	6.20 (Dec. 29)	490.00 (June 06 & 09)	246.00
Average	333.40	4.90	396.58	184.14
<u>Handy and Harman:</u>				
<u>1996:</u>				
Average	387.81	5.18	XX	XX
<u>1997:</u>				
October	324.87	5.00	XX	XX
November	307.10	5.06	XX	XX
December	288.65	5.71	XX	XX
Year to date	331.16	4.89	XX	XX
<u>London Final:</u>				
<u>1996:</u>				
Average	387.70	5.20	XX	XX
<u>1997:</u>				
October	324.87	5.04	XX	XX
November	306.03	5.07	XX	XX
December	288.74	5.78	XX	XX
Year to date	331.15	4.90	XX	XX

XX Not applicable.

Source: Platt's Metals Week.

TABLE 3
U.S. IMPORTS AND EXPORTS OF GOLD, BY COUNTRY 1/

(Kilograms of gold content, unless otherwise specified)

Country	Ores and concentrates 2/	Dore and precipitates	Refined bullion 3/	Total	Waste and scrap 4/ (gross weight)
Imports for consumption:					
1996:	3,460	11,900	143,000	159,000	13,000
1997:					
August	84	760	13,000	13,800	1,030
September	114	1,400	17,800	19,300	1,180
October:					
Brazil	--	--	2,950	2,950	--
Canada	--	230	4,310	4,540	43
Chile	4	--	475	479	1
Colombia	--	--	191	191	114
Dominican Republic	--	--	--	--	423
Mexico	--	941	190	1,130	180
Peru	--	77	193	270	--
Switzerland	--	--	614	614	--
Other	--	11	773	784	439
Total	4	1,260	9,690	11,000	1,200
Year to date	1,500	12,000	159,000	172,000	10,500
Exports:					
1996:	374	65,100	406,000	471,000	89,900
1997:					
August	6	10,100	14,500	24,600	5,670
September	56	8,730	16,300	25,100	5,670
October:					
Canada	35	705	137	877	3,250
France	--	--	--	--	1,340
Germany	23	--	91	114	236
Korea, Republic of	--	--	303	303	--
Mexico	--	--	1,030	1,030	--
Switzerland	--	3,260	6,870	10,100	7
United Kingdom	--	2,940	7,610	10,600	607
Other	1	2	1,050	1,050	605
Total	59	6,900	17,100	24,100	6,050
Year to date	393	62,800	357,000	420,000	50,700

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes gold content of base metal ores, concentrates, and matte imported for refining.

3/ Bullion also moves in both directions between U.S. markets and foreign stocks on deposit in the Federal Reserve Bank. Monetary gold excluded.

4/ "Waste and scrap" not included in "Total."

Source: Bureau of the Census.

TABLE 4
U.S. IMPORTS AND EXPORTS OF SILVER, BY COUNTRY 1/

(Kilograms of silver content, unless otherwise specified)

Country	Ores and concentrates 2/	Dore and precipitates	Refined bullion	Total	Waste and scrap 3/ (gross weight)
Imports for consumption:					
1996:	153,000	281,000	2,580,000	3,010,000	1,810,000
1997:					
August	15,100	6,430	200,000	222,000	88,200
September	15,700	21,600	170,000	208,000	89,600
October:					
Canada	20	1	39,100	39,100	22,600
Chile	143	21,400	2,500	24,100	11
Germany	--	--	--	--	17,900
Malaysia	--	--	--	--	26,400
Mexico	269	547	75,700	76,500	498
Peru	--	--	16,300	16,300	--
Philippines	--	--	--	--	8,590
South Africa	--	--	--	--	11,100
Taiwan	--	--	--	--	35,200
Other	--	148	85	233	522
Total	432	22,100	134,000	156,000	123,000
Year to date	113,000	253,000	1,680,000	2,040,000	1,160,000
Exports:					
1996:	1,520 r/	43,300	2,900,000 5/	2,950,000	1,280,000
1997:					
August	--	2,560	202,000	204,000	73,100
September	173	3,650	299,000	303,000	103,000
October:					
Belgium	--	--	18,000	18,000	4,720
Canada	720	--	199	919	39,200
China	--	521	--	521	9,040
France	--	--	--	--	254
Germany	--	--	--	--	3,470
Hong Kong	--	--	--	--	5,820
Italy	--	--	--	--	5,960
Japan	--	--	--	--	17,900
Sweden	--	--	--	--	3,950
Taiwan	--	2,770	--	2,770	284
United Arab Emirates	--	--	36,500	36,500	--
United Kingdom	--	--	55,900	55,900	4,730
Other	--	--	43	43	933
Total	720	3,290	111,000	115,000	96,300
Year to date	29,900	57,300	2,210,000	2,300,000	833,000

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes silver content of base metal ores, concentrates, and matte imported for refining.

3/ "Waste and scrap" not included in "Total."

4/ All or part of these data have been referred to the Bureau of the Census for verification.

5/ Verification of Bureau of the Census exports was not possible for some months of 1996.

Source: Bureau of the Census.

TABLE 5
U.S. IMPORTS AND EXPORTS OF PLATINUM-GROUP METALS, BY COUNTRY 1/

(Kilograms of metal content, unless otherwise specified)

Country	Ores and concentrates	Waste and scrap (gross weight)	Refined					Ruthenium
			Platinum	Palladium	Rhodium	Iridium	Osmium	
Imports for consumption:								
1996:	1,960	5,060	73,700 2/	146,000	9,650	1,810	329	15,600
1997:								
August	--	560	4,890	11,900	777	147	--	1,080
September	--	345	6,540	15,200	5,720	133	--	1,790
October:								
Australia	--	116	227	--	1	--	--	--
Belgium	--	92	506	1,630	4	--	--	--
Canada	--	--	59	603	--	--	--	--
France		146						
Germany	--	1	568	986	26	10	--	28
Japan	--	--	6	1,340	4	--	--	--
Norway	--	--	32	185	--	--	--	--
Russia	--	--	19	6,280	396	--	--	238
South Africa	--	--	3,370	2,750	533	54	18	418
Switzerland	--	--	891	675	262	--	--	72
United Kingdom	--	108	179	939	17	97	--	17
Other	--	170	1,510	630	--	--	--	1
Total	--	633	7,140	16,000	1,240	161	--	774
Year to date	--	4,560	62,500	102,000	12,100	1,340	54	10,200
Exports:								
1996:	484	8,640	12,700	26,700	196	123 3/		
1997:								
August	44	1,410	2,430	4,140	4	8 3/		
September	20	630	1,720	2,810	8	67 3/		
October:								
Australia	--	--	1	1	--	--		
Belgium	--	1	709	620	--	--		
Canada	--	7	12	110	--	--		
France	--	--	77	24	--	--		
Germany	--	31	77	122	--	1 3/		
Italy	--	2	40	30	--	--		
Japan	--	194	10	--	--	1 3/		
Korea, Republic of	--	--	49	169	--	--		
Mexico	2	--	3	1,320	--	--		
Netherlands	--	--	4	335	--	--		
Switzerland	--	--	3	131	--	--		
Taiwan	--	--	33	170	--	--		
United Kingdom	1	685	120	274	13	32 3/		
Other	--	23	78	181	--	1 3/		
Total	2	943	1,220	3,490	13	35 3/		
Year to date	545	10,100	18,600	33,500	146	517 3/		

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Of this amount, 2,070 kilograms was in the form of platinum coins.

3/ Includes osmium and ruthenium.

Source: Bureau of the Census.